

# PERFORMANCE OF COMMERCIAL FORAGES IN ILLINOIS

**THE UNIVERSITY OF ILLINOIS** commercial forage testing program has been testing public and private forages for over 58 years. The initial purpose was to evaluate the many public varieties available, today public varieties are far out numbered by private varieties. This year 28 seed companies are participating in the 2009 trials.

The purpose of this commercial forage testing program is to provide unbiased, objective, and accurate testing of all varieties entered. The tests are conducted on as uniform a soil as is available in the testing area. Small plots are used to reduce the chance of soil and climatic variations occurring between one variety plot and another.

The results of these tests should help you judge the merits of varieties in comparison with other private and public varieties. Because your soils and management may differ from those of the test location, you may wish to plant variety strips of the higher-performing varieties on your farm. The results printed in this circular should help you decide which varieties to try.

## TEST PROGRAM

**Selection of entries** Forage producers in Illinois and surrounding states were invited to enter varieties in the 2009 Illinois forage performance trials. Entrants were required to provide seed in a commercially available container to the University of Wisconsin for distribution to other public testing programs. This is to ensure performance is not affected by seed source and to avoid each entrant the cost of sending a commercial bag of seed to each program.

To help finance the testing program, a fee of \$450 per location per 4 years was charged for each variety entered by the seed producer. Most of these varieties are commercially available, but some experimental varieties were also entered. A total of 84 varieties were tested in 2009.

**Number and location of tests** In 2009, tests were conducted at 2 locations throughout the state (see map on pg. 4). These sites represent the major soils and dairy producing areas of the state.

**Field plot design** Entries of each test were replicated four times in a randomized complete block. Plot size was 23 feet by 3 feet and end trimmed at each harvest to obtain a 19 foot long plot.

**Fertility and weed control** All test locations were managed at a high level of fertility for each crop. Herbicides were used at all test locations for weed control.

**Method of planting and harvesting** All trials were seeded with a five row seeder modified to accommodate small plot seeding. Plots were seeded at 18 pounds per acre. Harvests were taken with a custom built flail chopper equipped with electronic data gathering equipment.

## PERFORMANCE DATA

**Yield** Forage yield is reported in tons dry matter per acre. Yields were converted to a dry matter basis by estimating percent moisture within each trial.

## SUGGESTIONS FOR COMPARING ENTRIES

It is impossible to obtain an exact measure of performance when conducting any test of plant material. Harvesting efficiency may vary, soils may not be uniform, and many other conditions may produce variability. Results of repeated tests are more reliable than those of a single year or a single-strip test. When one variety consistently out yields another at several test locations and over several years of testing, the chances are good that this difference is real and should be considered in selecting a variety.

As an aid in comparing alfalfa varieties within a single trial, certain statistical tests have been devised. One of these tests, the least significant difference (L.S.D.), when used in the manner suggested by Carmer and Swanson<sup>1</sup> is quite simple to apply and is more appropriate than most other tests. When two entries are compared and the difference between them is greater than the tabulated L.S.D. value, the entries are judged to be "significantly different."

The L.S.D. is a number expressed in tons dry matter per acre and presented following the average yield. An L.S.D. of 5% is shown. Add the L.S.D. value to the trial mean. Every variety with a greater yield than the resulting number is "statistically better than average". Consider the merits of the varieties in this group when making varietal selections.

To make the best use of the information presented in this circular and to avoid any misunderstanding or misrepresentation of it, the reader should consider an additional caution about comparing entries. Readers who compare entries in different trials should be extremely careful, because no statistical tests are presented for that purpose. Readers should note that the difference between a single entry's performance at one location and its performance at another is caused primarily by environmental effects and random variability. Furthermore, the difference between the performance of entry A in one trial and the performance of entry B in another trial is the result not only of environmental effects and random variability, but of genetic effects as well.

<sup>1</sup>Carmer, S.G. and M.R. Swanson. "An Evaluation of Ten Pairwise Multiple Comparison Procedures by Monte Carlo Methods." Journal of American Statistical Association 68:66-74. 1983.

## 2009 TEST FIELDS

### Freeport

Location: Stephenson county, north of Freeport, north central Illinois.

Cooperators: Dave and Mike Macomber.

### Urbana

Location: University of Illinois, Crop Sciences Research and Education Center, Champaign county, east central Illinois.

Cooperators: Robert Dunker; agronomist, Mike Kleiss; farm foreman.

**Pro Seeds**, Pro Seeds Marketing, 13963 Westside Lane S., Jefferson, OR 97352.

**Producers Choice**, Producer's Choice, 2850 390<sup>th</sup> St., Story City, IA 50248.

**Public Varieties**, Various sources

**Radix**, Radix Research, Inc., 533 Park Avenue, Eugene, OR 97404.

**Renk**, Renk Seed Co., 6800 Willburn Rd., Sun Prairie, WI 53590.

**Target**, Target Seed, P.O. Box 300, Parma, ID 83660.

**Winfield Solutions**, Winfield Solutions, LLC, 2901 Packers Ave., Madison, WI 53707.

## 2009 GROWING SEASON RAINFALL

Location	April	May	June	July	Aug	Sept	Total
Freeport	5.05	2.05	4.20	5.25	6.75	1.80	25.1
Urbana	7.24	5.71	4.42	6.30	5.62	0.08	30.1

## SOURCES OF SEED

**Ag Research USA**, Ag Research USA Limited, P.O. Box 8159, Ashville, NC 28814.

**AGSP**, American Grass Seed Producers, P.O. Box 268, Tangent, OR 97389.

**Albert Lea**, Albert Lea Seed House, Inc. 1414 W Main, Albert Lea, MN 56007.

**Allied**, Allied Seed, L.L.C., 1108 Hilldale Dr., Macon, MO 63552.

**America's**, America's Alfalfa, P.O. 8246, Madison, WI 53708.

**AMPAC**, AMPAC Seed Co., PO Box 318, Tangent, OR, 97389-0318.

**Bio Plant**, Bio Plant Research, P.O. Box 320, Camp Point, IL 62320.

**Croplan**, Croplan Genetics, P.O. 64406, St. Paul, MN 55164-0406.

**Dairyland**, Dairyland Seed Co., P.O. Box 958, West Bend, WI 53095.

**Dekalb**, Monsanto, 800 N Lindbergh Blvd., St. Louis, MO 63167.

**DLF Int'l**, DLF- International Seeds. Inc., P.O. Box 229, Halsey, OR 97348.

**FS Seed**, Growmark Inc., 1701 Towanda Ave., Bloomington, IL 61701.

**Garst**, Garst Seed Co., 2369-330th St, P.O. Box 500, Slater, IA 50244.

**Golden Harvest**, Golden Harvest Seeds, 7500 Olson Memorial Hwy, Golden Valley, MN 55427.

**Great Plains**, Great Plains Research Co., Inc., 3624 Kildaire Farm Rd., Apex, NC 27539.

**Kitchen**, Kitchen Seed Company, P. O. Box 289, Arthur, IL 61911.

**Kelly**, Kelly Seed & Hardware, 202 Hamilton Blvd., Peoria, IL 61602.

**Mycogen**, Mycogen Seeds, 9330 Zionsville Rd., Indianapolis, IN 46268.

**Oregro**, Oregro Seeds, 33080 Red Bridge Rd., Albany, OR 97322.

**Pennington**, Pennington Seed, P.O. Box 290, Madison, GA 30650.

**Pioneer**, Pioneer Hi-bred International, Inc., 14171 Carole Dr., Bloomington, IL 61704.

## 2009 FORAGE LOCATIONS



2009 Alfalfa Entries, Disease and Fall Dormancy Ratings

* experimental	Company-Brand	Variety	Freeport 06 07	Urbana 06 08	Disease Resistance <sup>4</sup>																					
					FD <sup>2</sup>		WS <sup>3</sup>		BW		VW		FW		AN		PRR		APH		APH		PA	SN	RN	LH
					race 1	race 2	race 1	race 2	race 1	race 2	race 1	race 2	race 1	race 2	race 1	race 2	race 1	race 2	race 1	race 2						
	Mycogen	4A421	x		4	1.8	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	-	R	-	-	-					
	Mycogen	4G418RR^	x		4	-	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	-	-	-	-	-					
	Mycogen	4P424^	x	x	4	2.0	HR	HR	HR	HR	HR	HR	HR	HR	HR	-	-	-	-	HR						
	Mycogen	4S419*^	x		4	-	HR	HR	HR	HR	HR	HR	R	-	-	-	-	-	-	-						
	Pioneer	53H92	x	x	x	3	-	HR	R	HR	HR	HR	HR	HR	R	HR	R	LR	HR	HR						
	Pioneer	53Q30	x		3	2.5	HR	HR	HR	HR	HR	HR	HR	R	R	R	R	HR	S							
	Pioneer	5454	x	x	x	4	2.7	HR	HR	HR	HR	HR	HR	-	R	R	R	HR	-							
	Pioneer	54V46	x		4	3.1	R	HR	HR	HR	HR	HR	R	R	R	R	MR	HR	HR							
	Pioneer	55V48		x	5	-	HR	R	HR	HR	HR	HR	HR	R	HR	R	R	-	-							
	Garst	6415	x	x	4	1.4	HR	HR	HR	HR	HR	HR	HR	-	R	-	-	-	-							
	Garst	6417		x	4	2	HR	HR	HR	HR	HR	HR	HR	HR	HR	R	-	-	-							
	Garst	6426	x	x	x	4	2	HR	HR	HR	HR	HR	HR	-	HR	HR	-	-	HR							
	Garst	6443RR	x		4	2	HR	HR	HR	HR	-	-	-	-	HR	R	-	-	-							
	Producer's Choice	A 4440		x	4	1	HR	HR	HR	HR	HR	HR	HR	HR	-	R	-	-	-							
	America's Alfalfa	Ameristand 404LH		x	4	-	HR	HR	HR	HR	HR	HR	HR	-	-	-	-	-	HR							
	America's Alfalfa	Ameristand 407TQ	x		x	4	2.0	HR	HR	HR	HR	HR	HR	R	HR	MR	-	-	-							
	Bio Plant	BPR 382*^	x		4	-	HR	HR	HR	HR	HR	HR	R	-	-	-	-	-	-							
	AMPAC	CW 045037*^		x	5	2.0	HR	R	HR	R	R	R	R	-	MR	-	-	-	-							
	Dekalb	DKA41-18RR	x		4	2.0	HR	HR	HR	HR	HR	HR	HR	-	HR	R	-	-	-							
	DeKalb	DKA43-13^		x	4	-	HR	HR	HR	HR	HR	HR	HR	-	-	-	-	-	-							
	Dairyland	DS417*^	x		4	-	HR	HR	HR	HR	HR	HR	HR	-	-	-	-	-	-							
	Albert Lea Seed House	Enforcer		x	4	2	HR	HR	HR	HR	HR	HR	HR	-	-	R	-	-	HR							
	Kitchen Seed	FSG 400LH		x	4	2	HR	HR	HR	HR	HR	HR	HR	-	R	-	-	-	HR							
	Kitchen/Kelly	FSG 406		x	4	2.0	HR	HR	HR	HR	HR	HR	HR	-	R	-	-	-	-							
	Kitchen/Kelly	FSG 408DP		x	4	-	HR	R	HR	HR	HR	HR	R	-	-	-	-	-	-							
	Kitchen/Kelly	FSG 505		x	5	2.9	HR	HR	HR	HR	HR	HR	R	-	R	R	R	-	-							
	Kitchen/Kelly	FSG 528 SF		x	5	-	HR	HR	HR	HR	R	R	-	-	R	-	-	-	-							
	Golden Harvest	GH727		x	4	1	HR	HR	HR	HR	HR	HR	HR	-	R	R	-	-	-							
	Golden Harvest	GH773LH		x	4	2	HR	HR	HR	HR	HR	HR	HR	-	HR	R	-	-	HR							
	Producer's Choice	Integrity	x		4	-	HR	HR	HR	HR	HR	HR	HR	R	-	-	-	-	-							
	Great Plains	Preform*	x		4	2	HR	HR	HR	HR	HR	HR	HR	-	R	-	-	-	-							
	Bio Plant	Rebound 5.0	x		4	2.0	HR	HR	HR	HR	HR	HR	HR	-	R	-	-	-	-							
	Renk	Sring Gold	x		5	-	HR	HR	HR	HR	HR	HR	HR	-	R	-	-	-	-							
	Target	TS-4007*^	x		4	-	HR	HR	HR	HR	HR	HR	-	-	-	-	-	-	-							
	Target	TS-4027*^	x		4	-	HR	HR	HR	HR	HR	HR	-	-	-	-	-	-	-							
	Public	Vernal	x	x	x	2	2.0	R	S	MR	S	S	S	-	S	-	MR	-	-							
	FS Seed	WL 343 HQ	x	x	x	4	1	HR	HR	HR	HR	HR	HR	-	HR	R	-	-	-							
	FS Seed	WL 355 RR	x		4	2	HR	HR	HR	HR	HR	HR	HR	-	R	R	MR	-	-							
	FS Seed	WL 363 HQ		x	5	1	HR	HR	HR	HR	HR	HR	HR	-	HR	HR	HR	-	-							
	Pioneer	X55V48*	x		5	-	HR	R	HR	HR	HR	HR	HR	-	HR	R	R	-	-							

<sup>2</sup> Fall Dormancy Scale: 1= Least fall growth; 9= greatest fall Growth

<sup>3</sup> WS = winter survival index as determined in University of Wisconsin and Minnesota trials:  
1= superior winter survival 2= very good 3= good 4= adequate 5= low 6= no winter survival

^ Varieties not reviewed by the National Alfalfa Variety Review Board. Resistance information not verified.

**<sup>4</sup>Disease and Pest Abbreviations**

BW= Bacterial Wilt  
 VW =Verticillium Wilt  
 FW = Fusarium Wilt  
 AN = Anthracnose  
 PRR = Phytophthora Root Rot  
 APH = Aphanomyces  
 PA = Pea Aphid  
 SN = Stem Nematode  
 RN = Root Knot Nematode  
 LH = Leafhopper

**% Resistant Plants**

HR = High Resistance  
 R = Resistant  
 MR = Medium Resistance  
 LR = Low Resistance  
 S = Susceptible  
 ND = Not Determined

**Resistance Class**

>50  
 31-50  
 15-30  
 6-14  
 0-5

## 2009 Forage Grass Entries

Company-Brand	* experimental Variety	Urbana 06 08
AgResearch USA	Advance MaxQ TF	x x
AgResearch USA	AGR FA 140* TF	x x
AgResearch USA	AGR FA 144* TF	x x
AgResearch USA	AGR FA 148* TF	x
AgResearch USA	AGR FA 150* TF	x x
AgResearch USA	AGR FA 152* TF	x x
AgResearch USA	AGR FA 155* TF	x
AgResearch USA	AGR FX 101* FS	x
AgResearch USA	AGR FX 102* FS	x
AgResearch USA	AGR FX 103* FS	x
AgResearch USA	AGR FX 104* FS	x
AGSP	Ambrosia OG	x
Allied Seed	Bonus FS	x
Allied Seed	Boost PRG	x
DLF International	Calibra PRG	x
AgResearch USA	Check LC TF	x
AgResearch USA	Check AL TF	x
AgResearch USA	Check RN TF	x
AgResearch USA	FA 2865* TF	x
AgResearch USA	FA 2866* TF	x
Allied Seed	Gain FS	x
AgResearch USA	Jesup MaxQ TF	x
AgResearch USA	K 6562 QII 542* TF	x
KY Agric Exp Sta	Kentucky 31 E- TF	x
KY Agric Exp Sta	Kentucky 31 E+ TF	x x
AgResearch USA	KFA 402 V 542* TF	x
AgResearch USA	KLp 401* PRG	x
AgResearch USA	KLp 507* PRG	x
AgResearch USA	KRC 6576* PRG	x
AgResearch USA	KRC 6579* PRG	x
Public	Lincoln SB	x
Ampac Seed	Linn PRG	x
Pennington	Olympia OG	x
Ampac Seed	Potomac OG	x x
Ampac Seed	Power PRG	x
Ampac Seed	Profit OG	x
Radix	RAD-BIX33* HSB	x
Pro Seeds	Shiloh II OG	x
AgResearch USA	Spring Green FS	x
DLF International	Spring Green FS	x
Winfield Solution	TF0201* TF	x
Oregro	TF-4* TF	x
Oregro	Tucker OG	x
AGSP	Verdant TF	x

- <sup>1</sup> FS= Festulolium  
 HSB= Hybrid smooth bromegrass  
 OG= Orchardgrass  
 PRG= Perennial Rye Grass  
 SB= Smooth bromegrass  
 TF= Tall fescue